

APPLICATION FOR
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S P E C I F I C A T I O N

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DESCRIPTION

TITLE OF THE INVENTION

INFORMATION DISPLAYING APPARATUS WITH WORD SEARCHING FUNCTION
AND RECORDING MEDIUM

5

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to an information displaying
apparatus such as an electronic dictionary and to a computer
10 program for displaying explanation information concerning a
keyword.

Description of the Related Art

An electronic dictionary has been in practical use, in which,
when a user enters a word that he/she wants to learn the meaning
15 to instruct to make a search for the word, the word is searched
for through explanation contents previously stored therein, and
the explanation content concerning the word is read out and
displayed.

Another electronic dictionary is also in practical use, in which
20 when the user enters a desired word, keywords which coincide
with the entered word and similar words are displayed in a list
form, and further when the user selects his/her desired word
among the plural keywords or similar words displayed in a list
form, a display screen is switched to display the explanation
25 content concerning the selected word, allowing the user to learn
the appropriate meaning of his/her desired word.

An electronic dictionary has been proposed, which has a list

display area and a preview display area for a keyword, and displays in the list display area a list of candidate keywords for entered characters and simultaneously displays information corresponding to a word selected with a cursor among the list of candidate keywords.

Further, an electronic dictionary has been put to practical use, in which, when the user enters his/her desired word, keywords which coincide with the entered word and words similar to the entered words are displayed in a list form, and when the user's desired word is selected among the plural keywords or similar words displayed in a list form, a display screen is switched to display the explanation content concerning the selected word, allowing the user to learn the appropriate meaning of his/her desired word.

Another electronic dictionary has been in practical use, in which search characters consisting of plural words (not a single word) are searched for and an electronic dictionary is put to practical use, in which data base specialized in phrases is prepared, and search characters consisting of plural words are searched for through such data base.

For searching for a phrase, a dictionary having data base specialized in phrases is used, or a word is searched for such data base and the user learns the phrase form a sample sentence contained in the explanation content concerning the word.

In the conventional dictionaries set forth above, since the whole explanation content concerning the selected keyword is displayed, the user is forced to read the explanation content

from the very beginning to reach his/her desired appropriate explanation content, which requires a troublesome work. Further, in the electronic dictionary which displays information concerning the word selected with the cursor for previewing purpose, the user is required to read the explanation content from the beginning to reach his/her desired appropriate explanation content.

Some electronic dictionary displays plural explanation contents concerning the selected keyword, but the explanation contents to be displayed are changed every time another keyword is selected among those displayed in a list form. Therefore, when the appropriate content is not contained in the currently displayed explanation contents, the user is required to make a time consuming manipulation to change the displayed explanation contents to obtain appropriate information.

In searching for a phrase though a specialized dictionary prepared for searching for a phrase, a phrase such as "word + a preposition" having a special meaning may be searched or found, but a phrase of "word + a preposition" having a normal meaning is not often found in such specialized dictionary.

As described above, it will be difficult for a beginner to determine which dictionary is suitable for the user to search for a series of words.

For example, when the beginner thinks the search characters to be searched for are "word + a preposition", but the search characters actually are "word + infinitive", it will be difficult for the beginner to find correct meanings of such

search characters.

Further, in searching for a phrase though the dictionary specialized in phrases, the meaning of the phrase to be searched for varies depending on a main word contained in such phrase.

5 As described above, even if the user any electronic dictionary, it is difficult for the user to search for the search characters consisting of plural words through the electronic dictionary to learn an appropriate meanings.

10 SUMMARY OF THE INVENTION

The present invention has been made to solve the problems or the inconveniences set forth above, and according to one aspect of the invention there is provided an information displaying apparatus and a computer program for displaying appropriate
15 explanation information concerning a desired keyword, allowing a user to search for his or her desired word in an easy and simple way.

According to another aspect of the invention, there is provided an information display apparatus having a display device, which
20 has a storage storing explanation information concerning keywords, and in which a keyword is searched through the explanation information stored in the storage by a keyword searching unit, and plural keywords found by the keyword searching unit are displayed in a list form on the display device
25 together with a part of explanation information concerning each of the found keywords, and when either of the plural keywords displayed in a list form on the display device is designated,

plural pieces of explanation information concerning the designated keyword are displayed in a list form by an explanation-information display control unit over the displayed explanation information concerning each of the keywords in an overlapping manner and further displayed in such fashion that the explanation information concerning the designated keyword and the designated keyword. are associated with each other.

According to yet another aspect of the invention, there is provided an information displaying apparatus, which has a storage storing keywords and plural pieces of explanation information concerning each keyword, and in which when search characters including a series of words are entered through a search character input unit, either of the series of words is searched for through the keywords stored in the storage by a keyword searching unit, and an explanation-information judging unit judges whether or not the series of words are included in any of the plural pieces of explanation information concerning the keyword found by the keyword searching unit, and a searched-information display unit displays the piece of the explanation information together with the keyword, in which explanation information the explanation-information judging unit determines the series of words are included.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate presently

preferred embodiments of the invention, and together with the general description given above and the detailed description of the preferred embodiments given below, serve to explain the principles and the scope of the invention.

5 Fig. 1 is a block diagram illustrating an electronic circuit configuration of an electronic dictionary with a communication function (communication electronic-dictionary) 10, that is, an information displaying apparatus according to embodiments of the present invention;

10 Fig. 2 is a view showing a keyword table 12b of the communication electronic-dictionary 10, in which table data are stored;

Fig. 3 is a view showing an explanation-information table 12c of the communication electronic-dictionary 10, in which table data are stored;

15 Fig. 4 is a view showing a correspondence-data table 12g of the communication electronic-dictionary 10, in which table data are stored;

Fig. 5 is a flowchart showing an information displaying procedure (#1) performed in a dictionary search operation in
20 the communication electronic-dictionary 10;

Fig. 6 is a flowchart showing an information displaying procedure (#2) performed in the dictionary search operation in the communication electronic-dictionary 10;

Fig. 7 is a flowchart showing a phrase-usage searching procedure
25 performed in the information displaying procedure in the communication electronic-dictionary 10.

Figs. 8A and 8B are views illustrating a processed state (#1)

in the information displaying procedure in the dictionary search operation of the communication electronic-dictionary 10.

Figs. 9C and 9D are views illustrating the processed state (#2) in the information displaying procedure in the dictionary search operation of the communication electronic-dictionary 10.

Fig. 10 is a flowchart showing an information displaying procedure (#1) performed in the dictionary search in the communication electronic-dictionary 10.

Fig. 11 is a flowchart showing the information displaying procedure (#2) performed in the dictionary search in the communication electronic-dictionary 10.

Fig. 12 is a flowchart of a keyword selecting procedure performed in the information displaying procedure of the communication electronic-dictionary 10.

Fig. 13 is a flowchart of a plural-word search procedure performed in the information displaying procedure of the communication electronic-dictionary 10. In the plural-word search procedure, plural words are searched through the explanation data.

Figs. 14A, 14B and 14C are views illustrating display screens displayed when a search character string consisting of one word is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

Figs. 15A and 15B are views illustrating the first examples of

display screens (#1) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

5 Figs. 16C and 16D are views illustrating the first examples of display screens (#2) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

10 Figs. 17A and 17B are views illustrating the second examples of display screens (#1) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

15 Figs. 18C and 18D are views illustrating the second examples of display screens (#2) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

20 Figs. 19A, 19B and 19C are views illustrating the third examples of display screens displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

25 Figs. 20A and 20B are views illustrating the forth examples of display screens displayed when a search character string consisting of plural words is input in the information

displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

Figs. 21A and 21B are views illustrating the fifth examples of display screens displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search operation of the communication electronic-dictionary 10.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now, preferred embodiments of the present invention will be described with reference to the accompanying drawings.

Fig. 1 is a block diagram showing a configuration of an information display apparatus according to an embodiment of the present invention, that is, a configuration of an electronic circuit of an electronic dictionary 10 with a communication function.

The electronic dictionary 10 with a communication function comprises a computer, which operates under control of a program stored in various recording media, or under control of a program transferred externally. The computer is provided with an electronic circuit including a central processing unit (CPU) 11.

The CPU 11 serves to control operations of various circuits in accordance with instructions of a control program such as an electronic-dictionary control program previously stored in a memory 12, an electronic-dictionary control program read out from an external recording medium 13 such as ROM card and stored

in a recording device 14, and an electronic-dictionary control program read into the memory 12 from a Web server (a program server) 20 on the Internet N via a communication unit 15. The electronic-dictionary control program stored in the memory 12 is activated by a input signal responding to a user's operation performed on an input unit 17 including keys and a touch panel, or by a communication signal for communicating with the Web server 20 on the Internet N connected via the communication unit 15.

The CPU 11 is connected with the memory 12, the recording device (or a recording medium reading unit) 14, the communication unit 15, and the input unit 17, and further connected with a display device 18 including a liquid crystal display unit (LCD).

The memory 12 of the electronic dictionary 10 with a communication function comprises a combination of ROM, Flash memory (EEP-ROM) and RAM.

In the memory 12 are stored a system program for controlling a whole operation of the electronic dictionary 10 with a communication function, a communication program for exchanging data with the Web server 20 on the Internet N via the communication unit 15, and the electronic-dictionary control program 12a for performing an information display procedure which is to be performed in a dictionary search.

The memory 12 is provided with a key word table 12b, an explanation data table 12c, a dictionary-content data memory 12d, an input search-word memory 12e, a search keyword list memory 12f, a correspondence-data table 12g, a designated

keyword memory 12h, a designated explanation item memory 12i, and a work area 12j.

Fig. 2 is a view showing the keyword table 12b of the electronic dictionary 10 with table data stored therein

- 5 In the keyword table 12b are stored a number of combination data each including an index number, a keyword, a storage address, and heading data of explanation data (first several characters of explanation data) contained in a dictionary. The heading data of first several characters included in the explanation
- 10 data corresponding to a keyword includes the number of characters to the extent that a user can understand the meaning of the explanation data or to the extent that can be contained in a data list displayed on the display device 18 (refer to a display screen of a search keyword list G2, shown in Fig. 9C).
- 15 Fig. 3 is a view illustrating the explanation data table 12c of the electronic dictionary 10 with table data stored therein. In the explanation data table 12c are stored heading data (including the predetermined number of characters) of plural explanation items (explanation data) for each key word of
- 20 various dictionaries stored in the dictionary content data memory 12d together with the corresponding index number, explanation number, and storage address. The heading data of each explanation item includes the number of characters to the extent that the user can understand the meaning of the
- 25 explanation data or to the extent that can be contained in a data list displayed on the display device 18 (refer to a display screen of a search keyword list G2, shown in Fig. 8B)

In the dictionary-content data memory 12d are stored data bases to be retrieved or searched in accordance with the electronic-dictionary control program 12a, that is, contents of various kinds of dictionaries such as an English-Japanese Dictionary, a Japanese-English Dictionary, a Japanese Dictionary, an Encyclopedia, a Technical-Term Dictionary, Kojien (TM., Japanese dictionary), and a Katakana Dictionary (Japanese dictionary).

In the input search-word memory 12e are stored a series of characters to be retrieved or searched, that is, keywords consisting of a word or a series of words entered in a dictionary search (the information display procedure).

In the search keyword list memory 12f are stored searched keyword list data, that is, all the keywords which coincide with or include a search character string searched in dictionary contents stored in the dictionary-content data memory 12d.

Fig. 4 is a view illustrating the correspondence-data table 12g of the electronic dictionary 10 with table data stored therein.

In a phrase-usage search procedure performed in the information displaying procedure in the dictionary search operation, when search characters stored in the input search-word memory 12e include a series of words, a main word in the series of words is searched for. When plural pieces of explanation information concerning the searched main word (keyword) includes data of "~" and data of "S,V,O", the data of "~" and data of "V" are replaced with the main word the plural pieces of explanation information, and when the search characters consisting of the

series of words are included in the plural pieces of explanation information in which data of "~" and data of "V" are replaced with the main word (the keyword), an index number of the keyword, and a number of the corresponding explanation content with a flag, a "sample" mark, and a "phrase" mark added are stored in
5 a correspondence-data table 12g. The flag indicates that corresponding data has been found, and the "sample" mark, and the "phrase" mark indicate that a related sample sentence and a related phrase are explained the explanation information,
10 respectively. The "sample" mark is associated with the flag, when a character string which coincides with the keyword of the series of words is contained in the middle of the explanation content, and the "phrase" mark is associated with the flag, when a character string which coincides with the keyword of the
15 series of words is contained at the head of the explanation content.

In other words, the index number and the number of the explanation content are indicated in the correspondence-data table 12g, when a phrase which coincides with the search
20 characters consisting of the series of words are contained in the explanation content or when a sample sentence using the search characters consisting of the series of words is contained in the explanation content.

In the designated keyword memory 12h is stored the number of
25 the keyword designated by the user in a list of keywords corresponding to the input search character string stored in the search keyword list memory 12f.

In the designated explanation item memory 12i is stored the number of the explanation content (explanation item) designated by the user among the plural explanation contents corresponding to the keyword designated by the user in the search keyword list.

5 In the work area 12j are temporarily stored various data according to need, which are input to or output from the CPU 11 in various processing operations in the electronic dictionary 10.

Now, operation of the information display apparatus of the above
10 described configuration (the electronic dictionary with a communication function) 10 (hereafter, a "communication electronic-dictionary") in the first embodiment will be described.

Fig. 5 is a flow chart showing an information displaying
15 procedure (#1) performed in the dictionary search in the communication electronic-dictionary 10.

Fig. 6 is a flow chart showing an information displaying procedure (#2) performed in the dictionary search in the communication electronic-dictionary 10.

20 Fig. 7 is a flow chart showing a phrase-usage searching procedure performed in the information displaying procedure in the communication electronic-dictionary 10.

Figs. 8A and 8B are views illustrating a processed state (#1) in the information displaying procedure in dictionary search
25 of the communication electronic-dictionary 10.

Figs. 9A and 9B are views illustrating a processed state (#2) in the information displaying procedure in dictionary search

of the communication electronic-dictionary 10.

At first a search mode is set by manipulation of an "English-Japanese" key 17a in the input unit 17, and when a search character string, for example, such as "kind to" are entered with a search-word input screen G1 (refer to Fig. 8A) displayed on the display device 18, and a "translation/determination" key 17b is manipulated, then data of the entered search character string "kind to" is stored in the input search-word memory 12e at Step S1 in the information displaying procedure shown in Fig. 5.

It is judged at Step S2 whether or not the input search word "kind to" stored in the input search-word memory 12e includes plural words.

When it is determined at Step S2 that the input search word includes plural words such as "kind" and "to", a keyword search is performed with respect to the heading word "kind" through dictionary data of an English-Japanese Dictionary stored in the dictionary-content data memory 12d, and plural keywords such as "kind1", "kind2", "kind a, -er", etc., which coincide with "kind" or include "kind" will be searched for and stored in the search keyword list memory 12f at Step S3a. Then, the phrase-usage searching procedure begins at Step SA and is performed in accordance with the flow chart shown in Fig. 7. In the phrase-usage searching procedure shown in Fig. 7, the keyword "kind1" is selected from among the plural keywords "kind1", "kind2", "kind a, -er", etc stored in the search keyword list memory 12f at Step A1, and then the first

explanation item is designated in the plural explanation items corresponding to the selected keyword at Step A2.

Content data of the designated explanation item is read out to the work area 12j at Step A3, and data of "~" contained in the
5 content data is replaced with the keyword "kind" at Step A4. At Step A5, it is judged whether or not a series of words or the content data with data of "~" replaced with the keyword "kind" coincide with or include a series of characters to be searched for, that is, "kind to" stored in the input search-word
10 memory 12e.

When it is determined at Step A5 that the series of words or the content data with data of "~" replaced with the keyword "kind" become a series of words starting with "kind to" and coincide with the series of characters to be searched for, that
15 is, "kind to", or come to the series of characters including "kind to", a mark or a flag representing that characters to be searched for or suitable characters have been found or searched is set in the correspondence-data table 12g together with the corresponding index number and explanation number at Step A6.

20 When NO at Step A5, or when it is determined at Step A5 that the series of words or the content data with data of "~" replaced with the keyword "kind" do not coincide with the series of characters to be searched for, that is, "kind to", or do not come to the series of characters including "kind to", or when
25 the mark or the flag representing that characters to be searched for or suitable characters have been found or searched is set in the correspondence-data table 12g at Step A6, it is judged

at Step A7 whether or not the following explanation item has been prepared in the explanation items corresponding to the designated keyword "kind".

When it is determined at Step A7 that the following explanation
5 item has been prepared, the following explanation item is designated at Step A8 and the procedure returns to a process at Step A3 and the similar processes at Step A3 through Step A5 are performed with respect to the following explanation item. As set forth above, in a first keyword search for searching the
10 search character string of "kind to", the first keyword "kind1" is searched, and is stored in the search keyword list memory 12f. Then, each explanation item for the first keyword "kind1" is processed such that data of "~" included therein are replaced with the keyword "kind", and it is judged whether or not the
15 resulting explanation item coincides with or includes the search character string of "kind to". When YES, the mark or flag is set to the corresponding index number and the explanation number in the correspondence-data table 12g. Then, the following keyword "kind2" stored in the search keyword list
20 memory 12f is designated at Step A10.

With respect to the following keyword "kind2" searched in the first keyword search for searching for the search character string of "kind to", each explanation item for the keyword
"kind2" is processed such that data of "~" included therein
25 are replaced with the keyword "kind", and it is judged whether or not the resulting explanation item coincides with or includes the search character string of "kind to". When YES, the mark

or flag is set to the corresponding index number and the explanation number in the correspondence-data table 12g. (Fig. 7: Step A3 through Step A8).

As described above, when the phrase-usage search procedure for searching for the search character string consisting of plural words has finished with respect to each of the searched keywords, the searched keywords "kind1" 31a, "kind2" 31b and "kind a, er" 31c are written into a left side area of the search keyword list display-screen G2 displayed on the display device 18 as shown in Fig. 8B. (Fig. 5: Step S4 through Step S4)

Meanwhile, when it is determined at Step S2 that the input search-word stored in the input search-word memory 12e includes only a single word, the keyword search is performed with respect to the single word through the dictionary data stored in the dictionary-content data memory 12d, and plural keywords 31a, 31b, etc, which coincide with or include the search word are searched and stored in the search keyword list memory 12f at Step 3b. As shown in Fig. 8B, these searched keywords 31a, 31b, etc. are written into the left area in the search keyword list display-screen G2 displayed on the display device 18 to be shown by a list at Step S4.

The heading keyword 31a among the plural keywords 31a, 31b, etc shown by a list in the left area of the search keyword list display-screen G2 is designated and stored in the designated keyword memory 12h at Step S5, and the heading data (including several characters) 32a, 32b, etc. of the explanation content for each of the plural keywords 31a, 31b, etc, shown by a list

are read out from the keyword table 12b shown in Fig. 2, and are shown by a list in a right area of the search keyword list display-screen G2 so as to correspond respectively to the keywords 31a, 31b, etc., as shown in Fig. 9C at Step S6.

5 The heading data (the predetermined number of characters) 33a, 33b, etc., included in the explanation items for the designated keyword 31a (for instance, keyword: "kind1", index number: 245) stored in the designated keyword memory 12h are read out from the explanation data table 12c shown in Fig. 3 at Step S7, and
10 are displayed by a list in an overlapping manner on the heading data 32a, 32b, etc. included respectively in the keywords 31a, 31b, etc., which have been displayed in the right area of the search keyword list display-screen G2 as shown in Fig. 8B at Step S8.

15 Then, an explanation item (for instance, No. 5) of the search keyword "kind to", which item has corresponding data, is discerned in accordance with the flags set in the correspondence-data table 12g with respect to explanation items 33a, 33b, etc. (No. 1, 2, 3, ..., n) for the designated keyword
20 31a (for instance, keyword: "kind1", index number: 245), and is displayed in a highlighted manner 34, 35 such as in red, in bold, or in a reversed manner, as shown in Fig. 8B at Step S9. Then, a list display area including the designated keyword 31a (for example, "kind1") and the heading data 33a, 33b, etc.
25 included in the corresponding explanation items are surrounded by a balloon 36 and displayed at Step S10. Further, the keyword "kind1" 31a is displayed in the highlighted manner 34 at Step

S11.

If all the heading data 33a, 33b, etc. included in the explanation items for the designated keyword 31a can not be displayed within the search-keyword list screen display G2, the
5 balloon 36 with a break 37 for surrounding the keyword and the heading data is displayed and indicates that there are additional explanation items which are not displayed within the balloon 36.

When the designated keyword among the keywords 31a, 31b, etc.
10 displayed on the left area of the search-keyword list display screen G2 is changed from "kind1" 31a to "kind2" 31b by placing a cursor 17c over "kind2" on the search-keyword list display screen G2 as shown in Fig. 9C at Step S12 (Fig. 6), the procedure returns to the process at S6, where the heading data 32a, 32b,
15 etc. included in the plural pieces of explanation content corresponding respectively to the keywords are displayed by a list. At Step S7 and Step S8, the heading data 33a, 33b, etc. included in plural explanation contents corresponding to the designated keyword "kind2" 31b with the cursor 17c placed over
20 are displayed. The highlighting display 35 is performed at Step S9 to discerning the heading data including the search character string from others, and a balloon display 36 is performed at Step S10, and further the highlighting display 34 is performed to discerning the designated keyword from other keywords at Step
25 S11, in the similar manner as set forth above with respect to the previously designated keyword "kind1".

When a heading data is designated among the heading data 33a,

33b, etc. included in the explanation items corresponding to the designated keyword by moving the cursor 17c on the search keyword list display-screen G2 at Step S13, the highlighting display 35 is performed with respect to the newly designated heading data, that is, the newly designated data is displayed in a reversed manner, at Step S14.

When a correspondence-data key (not shown) in the input unit 17 is manipulated at Step S15, the heading data of the following explanation item is displayed in a highlighted manner 35 at Step S16 in accordance with the explanation numbers of the search character string to which the flag are set in the correspondence-data table 12g.

When the "translation/determination" key 17b is manipulated at Step S17 with the desired-keyword selected and displayed in the highlighting manner 34 in the search keyword list display-screen G2, the explanation content of the selected keyword stored in the dictionary-content data memory 12d is successively read out from the heading explanation item to display an explanation content display-screen G3 on the display device 18 as shown in Fig. 9D at Step S18.

When the search character string including plural words (for example, "kind to") are included in the content data of the explanation item corresponding to the designated keyword on the explanation content display-screen G3, a block of data including the search character string, such as "S is kind to do" is displayed in other color, in highlighted characters or in other font (a search character-string highlighting display

37). (Step S19 and Step S20)

When the "translation/determination" key 17b is manipulated at Step S21 with an explanation item selected from among the explanation items 33a, 33b, etc. by moving the cursor 17c and

5 displayed in the highlighted manner 35 (Step S13, Step S14), or with an explanation item including the search character string selected by manipulation of the correspondence-data key and displayed (the highlighted display 35) (Step S15, Step S16), the explanation content corresponding to the selected
10 explanation item is successively read out from the dictionary content data memory 12d to display the explanation content display-screen G3 on the display device 18 at Step S22.

When the search character string including plural words appear in content data after the explanation item corresponding to the
15 designated keyword displayed on the explanation content display-screen G3, a block of data including the search character string is displayed in other color, in highlighted characters or in other font (a search character string discerning display 37). (Step S19 and Step S20)

20 As described above, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, plural keywords 31a, 31b, etc. corresponding to the input search character string are read out from the dictionary-content data memory 12d and are displayed by a list
25 in the left area on the search keyword list display-screen G2, and the heading data 32a, 32b, etc. included in the explanation contents corresponding respectively to the keywords 31a, 31b,

etc. are read out from the keyword table 12b and are displayed in the right area on the search keyword list display-screen G2. When a keyword 31 is selected from among the plural keywords 31a, 31b, etc. displayed by a list, the heading data 33a, 33b, etc. included in the plural explanation contents corresponding to the selected keyword are read out from the explanation data table 12c, and are displayed by a list in an overlapping manner in the right area on the search keyword list display-screen G2 where the heading data 32a, 32b, etc. included in the explanation contents corresponding to the keywords 31a, 31b, etc. are displayed. Therefore, when the user designates his/her desired keyword 31 while confirming the searched keywords 31a, 31b, etc. and the corresponding explanation contents 32a, 32b, etc., more detailed explanation contents 33a, 33b, etc. corresponding to the search keyword 31 are displayed, and the user is allowed to directly find and confirm the appropriate keyword 31 corresponding to the input search keyword string and its detailed explanation contents 33a, 33b, etc.

Further, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, the designated keyword 31 among the plural keyword 31a, 31b, etc. displayed by a list in the left area on the search keyword list display-screen G2 and the heading data 33a, 33b, etc. for the explanation items corresponding to the designated keyword 31 displayed by a list in the right area are surrounded by the balloon 36 for easy confirmation of the

keyword and the explanation contents.

Furthermore, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, if all the heading data 33a, 33b, etc. for the explanation items corresponding to the keyword 31 designated in the left area on the search keyword list display screen G2 can not be displayed on the same search keyword list display screen G2, the balloon 36 surrounding these data is broken at the break 37, by which the user can understand that the designated keyword 31 has additional explanation items not displayed on the current display screen.

Further, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, since the heading data extracted from the searched keywords 31a, 31b, etc. and the explanation data 32a, 32b, etc. (33a, 33b, etc.) corresponding to the designated keyword 31 are prepared with the predetermined number of letters to the extent that the meanings thereof can be understood or to the extent that can be displayed within the search keyword list display-screen G2, the user can understand the meanings of the explanation data 32a, 32b, etc. (33a, 33b, etc.), even if only the heading data are displayed.

In the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, when the input search character string is a phrase including plural words, and further when the explanation contents 32a, 32b, etc. (33a, 33b, etc.) corresponding to the searched keyword

31 include the character string including the plural words, the search word 31 and the explanation content 32 (33) are displayed in a highlighted manner 35 such as in other color, in bold, or in other font. Therefore, the user can easily find the portion including the search character string or the phrase in the explanation contents 32a, 32b, etc (33a, 33b, etc).

Further in the information displaying apparatus (the communication electronic-dictionary) 10 of the configuration set forth above, when the content data of the explanation items 33a, 33b, etc. corresponding to the designated keyword 31 are displayed on the explanation content display-screen G3, and when the content data contains a phrase including plural words, the phrase included in the content data is displayed in the highlighted manner 37 such as in other color, in bold or in other font, which allows the user to find the portion including the phrase.

Now, an operation of the information displaying apparatus (the communication electronic-dictionary) 10 of the configuration set forth above according to a second embodiment of the invention will be described.

Fig. 10 is a flowchart of an information displaying procedure (#1) performed in the dictionary search in the communication electronic-dictionary 10.

Fig. 11 is a flowchart of an information displaying procedure (#2) performed in the dictionary search in the communication electronic-dictionary 10.

Fig. 12 is a flowchart of a keyword selecting procedure

performed in the information displaying procedure of the communication electronic-dictionary 10.

Fig. 13 is a flowchart of a plural-word search procedure performed in the information displaying procedure of the communication electronic-dictionary 10. In the plural-word search procedure, plural words are searched through the explanation data.

Figs. 14A, 14B and 14C are views illustrating display screens displayed when a search character string consisting of one word is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 15A and 15B are views illustrating the first examples of display screens (#1) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 16C and 16D are views illustrating the first examples of display screens (#2) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 17A and 17B are views illustrating the second examples of display screens (#1) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 18C and 18D are views illustrating the second examples of display screens (#2) displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 19A, 19B and 19C are views illustrating the third examples of display screens displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 20A and 20B are views illustrating the forth examples of display screens displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

Figs. 21A and 21B are views illustrating the fifth examples of display screens displayed when a search character string consisting of plural words is input in the information displaying procedure performed in the dictionary search of the communication electronic-dictionary 10.

For instance, when a search mode has been set in an English-Japanese dictionary in response to manipulation of "English-Japanese" key 17a in the input unit 17 and a search character string of "kind" is entered with the search-word input screen G1 displayed on the display device 18 as shown in Fig. 14A, and when the "translation/determination" key 17b is manipulated as shown in Fig. 14B, data related to the input

keyword "kind" are in the input search-word memory 12e at Step P1 in Fig. 10.

At Step P2, it is judged whether the search word "kind" stored in the input search-word memory 12e includes plural words or not.

Since it is determined at Step P2 that the input search word "kind" does not include plural words, the procedure goes to a normal dictionary search, where the input search word "kind" is searched through the dictionary-content data (base) memory 12d, and a keyword 131b which coincides with the input search word "kind" and keywords 131c, 131d, etc. which include the input search word "kind" are searched and stored in the search keyword list memory 12f. The searched keywords 131b, 131c, 131d, etc are displayed in the left area of the search keyword list display screen G4 displayed on the display device 18.

In the right area of the search keyword list display screen G4 are displayed by a list the heading data 32a, 32b, etc. included respectively in the explanation contents of the keywords 131a, 131b, etc. stored in the keyword table 12b (Fig. 2) so as to correspond respectively to the keywords 131a, 131b, etc. displayed in the left area of the search keyword list display screen G4.

Then, the first keyword "kind1" is designated as default word among the keywords 131a, 131b, etc. shown by a list in the search keyword list display screen G4, and the designated keyword "kind1" is highlighted at 134 as shown in Fig. 14B. The heading data 133a, 133b, etc. included in the explanation contents

(items) of the designated keyword "kind1" are read out from the explanation data table 12c (Fig. 3) and are displayed by a list over the heading data 32a, 32b, etc of each of the keywords 131a, 131b, etc. in a overlapped manner. The highlighted designated
 5 keyword "kind1" 134 and the corresponding heading data 133a, 133b, etc. included in the explanation contents are surrounded by a balloon 135, which makes it clear that the keyword "kind1" and the heading data 133a, 133b, etc are related.

When the keyword 131 to be designated and highlighted is changed
 10 by manipulation of the cursor key 17c, the heading data 133a, 133b, etc included in the explanation contents of the newly designated keyword are read out and displayed with the balloon 135 surrounding them every time the other keyword is designated as shown in Fig. 14C.

15 Meanwhile, when, for instance, a search character string of "kind to" is entered with the search-word input screen G1 displayed on the display device 18 and the cursor key 17c is manipulated at Step P1, as shown in Fig. 15, it is determined at Step S2 that the search character string includes plural
 20 words, the procedure advances to a process at Step PA (Fig. 10), where the keyword selecting procedure is performed in accordance with the flowchart shown in Fig. 10.

In the keyword selecting procedure PA, it is judged at Step Q1 whether the search character string includes any verb or not.
 25 If no verb is included, it is judged at Step Q3 whether the search character string includes any adjective or not. If no verb and no adjective are included, it is judged at Step Q5 whether the

search character string includes any noun or not.

When it is determined at Step Q1 that the search character string includes a verb, the verb is designated as a main keyword to be searched at Step Q2. When it is determined that the search character string includes no verb, but includes an adjective, the adjective is designated as a keyword at Step Q4. Further, when it is determined that the search character string includes no adjective but includes a noun, then it is judged at Step Q6 whether the search character string includes plural nouns or not.

When it is determined at Step Q6 that the search character string includes plural nouns, the longest word among the plural nouns is designated as a keyword at Step Q7. If plural nouns of the same length are included in the search character string, the first appearing noun is designated as a keyword.

When the search character string does not include plural nouns but one noun, then the noun is designated as a keyword at Step Q8.

When the search character string consisting of plural words includes no verb, no adjective, or no noun, the first appearing word in the plural words is main keyword to be searched at Step Q9.

More specifically, with respect to the search character string consisting of plural words "kind to", a word "kind" is designated as the main keyword to be searched for, as shown in Fig. 15.

When a word is designated as the main keyword to be searched

for with respect to the search character string consisting of plural words at Step PA, the keyword "kind" is searched through the keywords contained in an English-Japanese dictionary data stored in the dictionary-content data memory 12d. Keywords

5 "kind1", "kind2", etc. which coincide with the keyword "kind" are searched and stored in the search keyword list memory 12f at Step P3 (Fig. 10), and the explanation contents corresponding to each of the searched keywords are read out at Step P4.

Then, the procedure advances to a plural-word search procedure

10 shown in Fig. 13 at Step PB, where plural words are searched through the explanation data.

In the plural-word search procedure at Step PB, when the first appearing keyword "kind1" is designated among the plural keywords "kind1", "kind2", etc. stored in the search keyword

15 list memory 12f at Step R1 shown in Fig. 13, the first explanation item is designated among the explanation contents corresponding to the designated keyword at Step R2.

Content data of the designated explanation item is read out to the work area 12j at Step R3, and it is judged at Step R4 whether

20 data of "~" is contained in the content data of the designated explanation item or not.

When it is determined that data of "~" is contained in the content data of the designated explanation item, data of "~" is replaced with the designated keyword "kind" at Step R5.

25 It is judged at Step R6 whether the designated keyword is a verb, and when it is determined that the keyword is a verb, it is judged at Step R7 whether a mark data of "SV" is contained in the content

data of the designated explanation item or not.

When it is determined that the mark data of "SV" is contained in the content data of the designated explanation item, the mark data of "SV" is replaced with data of [S + the designated keyword
5 "kind"].

As described above, if data of "~" is contained in the content data of the designated explanation item of the designated keyword, data of "~" is replaced with designated keyword "kind", and if the mark data of "SV" is contained in the content data
10 of the designated explanation item, the mark data of "SV" is replaced with data of [S + the designated keyword "kind"]. Then, it is judged at Step R9 whether or not the character string consisting of plural words in the explanation content, whose data has been replaced as described above, coincides with or
15 includes the search character string consisting of plural words, that is, "kind to".

For example, when the content data of the designated item whose data of "~" has been replaced with designated keyword "kind" becomes a character string starting with "kind to", it is
20 determined that the content data coincides with or includes the search character string "kind to". Then, it is judged at Step R10 whether the explanation content begins with the search character string "kind to" or not.

When it is determined that the content data of the designated
25 explanation item coincides with or includes the search character string and that the content data begins with the search character string, a mark (a flag) and a "phrase" mark

are set or added to the index number of the content data and the corresponding explanation number in the correspondence-data table 12g (Fig. 4) at Step R11. The flag represents that the explanation content coincides with the search character string and the "phrase" mark represents that the explanation content explains the phrase.

When it is determined that the content data of the designated explanation item contains a character string which coincides with or includes the search character string, and that the explanation content includes the character string not at the beginning of the explanation but in the middle thereof, a mark (a flag) and a "sample" mark are set or added to the index number of the content data and the corresponding explanation number in the correspondence-data table 12g (Fig. 4) at Step R12. The flag represents that the explanation content coincides with the search character string and the "sample" mark represents that the explanation content explains a sample sentence.

When it is determined at Step R9 that the content data of the designated explanation item with data of "~" replaced with the designated keyword or with a symbol data of "SV" replaced with [S + the designated keyword] does not coincide with nor include the search character string consisting of plural words, or when the mark (flag) is set together with the "phrase" mark or the "sample" mark in the correspondence table 12g at Step R11 or Step R12, it is judged at Step R13 whether or not there is a next explanation item in the explanation content of the designated keyword "kind1".

When it is determined that there is the following explanation item, the following explanation item is designated at Step R14, and the procedure returns to the process at Step R3. With respect to the newly designated explanation item,

- 5 the similar processes are performed at Step R3 through Step R9, that is, the replacing process of replacing the data of "~" with the designated keyword, and the replacing process of replacing the symbol data of "SV" with [S + the designated keyword] are performed and the coincidence judgment concerning
- 10 the search character string consisting of plural words is performed.

- With respect to the first keyword "kind1" that is searched in the keyword search for searching for the search character string consisting of plural words, "kind to", and is stored in the
- 15 search keyword list memory 12f, it is judged whether or not the corresponding explanation item with the data of "~" replaced with the keyword "kind" and with the symbol data of "SV" replaced with [S + the designated keyword] coincides with the search character string of "kind to". When the corresponding
- 20 explanation item coincides with the search character string, the "phrase" mark or the "sample" mark is set to the corresponding index number of the explanation item and the explanation number. Then, the further following keyword "kind2" stored in the search keyword list memory 12f is
- 25 designated at Step R16.

With respect to the second keyword "kind2" that is searched in the keyword search for searching for the search character string

consisting of plural words, "kind to", and is stored in the search keyword list memory 12f, it is judged whether or not the corresponding explanation item with the data of "~" replaced with the keyword "kind" and with the symbol data of "SV" replaced
 5 with [S + the designated keyword] coincides with the search character string of "kind to". When the corresponding explanation item coincides with the search character string, the "phrase" mark or the "sample" mark is set to the corresponding index number of the explanation item and the
 10 explanation number. Step R3 through Step R14).

When a procedure has been performed with respect to all the keywords searched in the keyword search, in which procedure it is judged whether or not a search character string consisting of plural words is included in content data of the explanation
 15 items for the keywords searched in the keyword search, it is judged at Step S5 whether or not a keyword whose content data completely includes the search keyword string has been found among English-Japanese dictionary data stored in the dictionary-content data memory 12d.

20 When the keyword whose content data completely includes the search keyword string has not been found among English-Japanese dictionary data stored in the dictionary-content data memory 12d, another word is selected and designated as a new keyword among from the plural words included in the search character
 25 string at Step P6. With respect to the new keyword, a keyword search procedure is performed at Step P7, for searching for a word whose explanation content data completely includes the

search character string including the new keyword. The explanation content data of the searched keywords are read out from the dictionary data at Step P8. Further, it is judged at Step PB where the search character string consisting of plural-word is included in content data of each of the explanation items corresponding to the keywords in a similar manner at Step P3, Step P4, and Step PB.

As described above, when a keyword whose explanation contents includes a search character string consisting of plural words is searched in the English-Japanese dictionary, the flag representing that the search character string is contained in the explanation contents of the searched keyword, the "phrase" mark representing that the explanation contents explain a phrase, and the "sample" mark representing that the explanation contents explain a sample sentence are associated with the explanation contents of the searched keyword. Then, the search character string consisting of plural words, "kind to" is searched through phrase-keywords in English-Japanese phrase dictionary data stored in the dictionary-content data memory 12d, and the searched phrase-keywords coincident with the search character string "kind to" are stored in the search keyword list memory 12f at Step P9, and the explanation content data of each of the searched phrase-keywords are read out at Step P10.

Then, with respect to the English-Japanese dictionary stored in the search keyword list memory 12f, the search keywords 131a, 131b, etc. and explanation contents (heading data each

including the search character string consisting of plural word) 136a, 136b, etc. of each of the search keywords 131a, 131b, etc. are displayed on the search keyword list display screen G4 of the display device 18. The displayed explanation contents each includes the search character string consisting of plural words and bears the "sample" mark 137a or the "phrase" mark 137b in accordance with the flags in the correspondence-data table 12g (refer to Fig. 15B, Fig. 17B, and Fig. 20A). Further, with respect to the English-Japanese phrase dictionary, the searched phrase-keywords (for example, 131c in Fig. 19 and 131b in Fig. 21) and the explanation contents (with the "phrase" mark added) 136a, 136b, etc of each of the searched phrase-keywords are displayed on the search keyword list display screen G4 of the display device 18 (refer to Fig. 19B and Fig. 21B) at Step P11.

The search keyword list display screen G4 in the first embodiment shown in Fig. 15 and Fig. 16, the search keyword list display screen G4 in the second embodiment shown in Fig. 17 and Fig. 18, and the search keyword list display screen G4 in the forth embodiment shown in Fig. 20 each illustrate the search key words 131a, 131b, etc. and explanation contents (heading data each including the search character string consisting of plural word, with the "sample" mark 137a or the "phrase" mark 137b added) 136a, 136b, etc. of each of the search keywords 131a, 131b, etc., which are to be displayed when the search character string has been searched for through the English-Japanese dictionary.

The search keyword list display screen G4 in the third

embodiment shown in Fig. 19 and the search keyword list display screen G4 in the fifth embodiment shown in Fig. 21 illustrate the search keywords 131a, 131b, etc. and explanation contents (heading data each including the search character string consisting of plural word, with the "sample" mark 137a or the "phrase" mark 137b added) 136a, 136b, etc. of each of the search keywords 131a, 131b, etc., which are to be displayed when the search keyword has been searched for through the English-Japanese dictionary and the search phrase-keywords 131a, 131b, etc. and explanation contents (with the "sample" mark 137a or the "phrase" mark 137b added) 136a, 136b, etc. of each of the search search-keywords 131a, 131b, etc., which are to be displayed when the search phrase-keyword has been searched for through the English-Japanese phrase dictionary.

As described above, the search keyword list display screen G4 is generated at Step P21, on which keywords, and phrase-keywords, both found in the dictionary search for searching for the search character string consisting of plural word, and the heading data of the explanation contents (with the "sample" mark and the "phrase" mark added) of the searched keywords and phrase-keywords are displayed. The first appearing keyword 131a among the plural keywords 131a, 131b, etc. is designated as the default keyword and highlighted as shown in Fig. 15B, Fig. 19B, Fig. 20A and Fig. 21B at Step P12, or the explanation content 136a of the designated keyword 131a is highlighted as shown in Fig. 17B at Step P13.

When the designated keyword is changed among the plural keywords

131a, 131b, etc. displayed on the left area of the search keyword list display screen G4

by moving the cursor 17c as shown in Fig. 16C, Fig.18C, and Fig.

19B at Step P15, the procedure returns to the process at Step

5 P13, where the changed keyword 131 or the corresponding explanation content 136 is highlighted and the apparatus is brought into a state of waiting for the user's manipulation.

On the other hand, when the cursor 17c is moved from one heading data to other among the heading data 136a, 136b, etc. of the

10 plural explanation items displayed on the search keyword list display screen G4 at Step P16, the heading data 136 to which the cursor 17 is moved is highlighted, for example, as shown in Fig. 16C, and Fig. 19B, at Step P17.

As shown in Fig. 20A, when the "translation/determination" key

15 17b is manipulated at Step P18 with the highlighted keyword 131a "look" selected on the search keyword list display screen G4, the explanation contents 136a for the selected keyword 131a, "look" stored in the dictionary-content data memory 12d are successively read out from the content data of the first
20 explanation item and displayed on the display device b18 as the explanation-content display screen G5 at Step P19.

When it is determined that any of content data of the explanation items 136a, 136b, etc. corresponding to the designated keyword 131a displayed on the explanation-content display screen G5

25 includes the search character string consisting of plural words, "look at", or that any of content data of the explanation items 136a, 136b, etc. in which data of "~" or data of "SV" enclosed

therein are replaced with the designated keyword, "look" in accordance with the flag or setting data given in the correspondence-data table 12g, includes the search character string consisting of plural words, "look at", a block of data in the content data, including the search character string consisting of plural words, for example, a block of data of "SV at O" (Fig. 20B) is highlighted at 138 or is displayed in other color, in bold, or in other font at Step P21.

Meanwhile, when the "translation/determination" key 17b is manipulated at Step P22 with an explanation item selected with the cursor 17c from among explanation items 136a, 136b, etc. and highlighted at 134 as shown in Fig. 16C, Fig. 18C and Fig. 19B, the explanation contents of the explanation item 136 of the selected keyword 31 stored in the dictionary-content data memory 12d are successively read out from the content data of the designated item 136 and displayed on the display device b18 as the explanation-content display screen G5 at Step P23.

When it is determined that the search character string consisting of plural words ("kind to" and "kind of") is included in content data of the explanation items following the explanation item 136 of the designated keyword 31 displayed on the explanation-content display screen G5 or that the search character string consisting of plural words is included in content data of the explanation items following the explanation item 136 of the designated keyword 31, in which content data data of "~" or data of "SV" included therein is replaced with the keyword "kind" in accordance with the flag or the setting

data given in the correspondence-data table 12g, a block of data in the content data, including the search character string is highlighted at 138 or is displayed in other color, in bold, or in other font at Step P21.

- 5 More specifically, as illustrated in the first example shown Fig. 15A and Fig. 15B, and in the second example shown in Fig. 17A and Fig. 17B, when a search character string consisting of plural words, "kind to" is entered on the search-word input screen G1 and the "translation/determination" key 17b is
 - 10 manipulated, a dictionary search procedure is performed with respect to a keyword, "kind", which is selected and designated as an index word. Content data of explanation items including the search character string consisting of "kind to" are judged in explanation contents of plural keywords which coincide with
 - 15 the search keyword "kind". In case that the corresponding keywords "kind1" 131a, "kind2" 131b, etc. and their heading data 136a, 136b, etc. explain sample sentences, the "sample" mark is added thereto and displayed on the search keyword list display screen G4, and in case that the corresponding keywords
 - 20 "kind1" 131a, "kind2" 131b, etc. and the heading data 136a, 136b, etc. explain phrases, the "phrase" mark is added thereto and displayed on the search keyword list display screen G4.
- As shown in Fig. 16C and Fig. 16b or in Fig. 18C and Fig. 18D, when a desired explanation item 136b for the desired keyword
- 25 "kind2" 131b is designated and highlighted by manipulating the cursor 17c on the search keyword list display screen G4 and the "translation/determination" key 17b is manipulated, the whole

content data for the designated explanation item 136b and the following items are read out and displayed as the explanation-content display screen G5.

On the explanation-content display screen G5, a block of data,
5 "S is kind to do", including the search character string consisting of plural words, "kind to" is highlighted or displayed in other color, in bold, or in other font, and therefore the user can easily find an explanation portion for the entered search character string consisting of plural words,
10 "kind to".

As illustrated in the third example shown Fig. 19A, when a search character string consisting of plural words "kind of" is entered on the search-word input screen G1 and the "translation/determination" key 17b is manipulated, the
15 dictionary search procedure is performed in the phrase dictionary in the dictionary with respect to the keyword "kind" designated as the index word, and the dictionary search procedure is performed in the phrase dictionary with respect to a phrase corresponding to the plural keywords "kind of".
20 Content data of the explanation item explaining the search character string consisting of plural words "kind of" is judged in the explanation contents for plural keywords which coincide with the keyword "kind", and the corresponding keywords "kind1" 131a, "kind2" 131b, etc. and their heading data 136a, 136b, etc.,
25 with the "sample" mark and the "phrase" mark added are displayed on the search-keyword list screen display G4 and the keyword "kind of O" 131c and its explanation content with the "phrase"

mark added are displayed on the same search-keyword list screen display G4.

As shown in Fig. 19B and Fig.19C, when the desired explanation item 136e corresponding to the desired keyword "kind2" 131b is highlighted on the search-keyword list display screen G4 by manipulation of the cursor key 17c, and the "translation/determination" key 17b is manipulated, the whole content data for the designated explanation item 136e and the following items are read out and displayed as the explanation-content display screen G5.

When it is determined that the search character string consisting of plural words, "kind of " is included in the explanation content data displayed on the explanation-content display screen G5, in which content data data of "~" is replaced with the keyword "kind", a block of data in the explanation content data including "it is ~ of S to do" is displayed at 138 in other color, in bold, or in other font, and therefore the user can easily find an explanation portion for the entered search character string consisting of plural words, "kind of".

The content data, "it is ~ of S to do", of the explanation item including the search character string consisting of plural words of "kind of " may be displayed as the content data "it is kind of S to do" in which data of "~" is replaced with the keyword "kind" for easy search and clear understanding.

As illustrated in the fourth example shown in Fig. 20, a search character string consisting of plural words, "look at" is entered and the "translation/determination" key 17b is

manipulated, the dictionary search procedure is performed with respect to the designated keyword "look". Content data of the explanation item explaining the search character string consisting of plural words "look at " is judged in the explanation contents for plural keywords which coincide with the keyword "look", and the corresponding keywords "look" 131a, and its heading data 136a included in the explanation item with the "sample" mark or the "phrase" mark added are displayed on the search-keyword list screen display G4.

- 10 When the "translation/determination" key 17b is manipulated with the first keyword 131a designated and highlighted at 134 as the default word among the searched keywords on the search-keyword list display screen G4, the whole content data of the explanation item 136a corresponding to the designated keyword "look" are read out and displayed as the explanation-content display screen G5.

When it is determined that the search character string consisting of plural words, "look at " is included in the explanation content data displayed on the explanation-content display screen G5, in which content data data of "~" and data of "SV" is replaced with the keyword "look" and "S + look" respectively, a block of data in the explanation content data including "SV at O" is displayed at 138 in other color, in bold, or in other font, and therefore the user can easily find an explanation portion for the entered search character string consisting of plural words, "look at".

The content data, "SV at O", of the explanation item including

the search character string consisting of plural words of "look at" may be displayed as the content data "S V=look at O" in which "V" in data of "SV" is replaced with the keyword "look" for easy search and clear understanding.

- 5 Further, as illustrated in the fifth example shown Fig. 21, when a search character string consisting of plural words, "in shape" is entered on the search-word input screen G1 and the "translation/determination" key 17b is manipulated, the dictionary search procedure is performed with respect to a
- 10 keyword, "shape", which is selected and designated as an index word and the dictionary search procedure is performed with respect to plural keywords, "in shape". Content data of explanation items including the search character string consisting of plural words, "in shape" are judged in explanation
- 15 contents of plural keywords which coincide with the search keyword "shape".

- The corresponding keyword "shape" 131a and its heading data 136a, 136b, etc. of the explanation items with the "sample" mark or "phrase" mark added are displayed by a list on the search keyword
- 20 list display screen G4, and the searched keywords "in shape" 131b and their explanation content with the "phrase" mark added are displayed by a list on the same search-keyword list screen display G4.

- As described above, with respect to the search character string
- 25 consisting of plural words, the keyword and its explanation content explaining the search keyword to be searched for are displayed together with the "sample" mark and/or the "phrase"

mark for easy search.

In the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, when a search character string consisting of plural words is entered, a verb, an adjective or a noun in the entered words is set as an index word, and plural keywords which coincide with the index word are searched from the English-Japanese dictionary, and explanation contents of the searched keywords are read out. Then, it is judged whether or not the read out explanation contents include the search character string consisting of plural wordst, or it is judged whether or not the read out explanation contents with data of "~" replaced with the index word and data of "SV" replaced with "S + the index word" include the search character string consisting of plural words. The explanation contents 136a, 136b, etc. including the search character string consisting of plural words and their keywords 131a, 131b, etc. are display by a list on the search-keyword list display screen G4. When a desired explanation content is designated, the whole data of the designated explanation content is displayed on the explanation-content display screen G5. Therefore, even if the search character string consists of a phrase or a semi-phrase including plural words or a noun + a preposition, the corresponding keyword and the explanation contents may be searched and displayed.

Further, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration

set forth above, explanation contents which include the search character string including plural words are searched. The keyword 131a, 131b, etc. corresponding to the searched explanation contents and the heading data 136a, 136b, etc.

5 included in the searched explanation contents are associated with each other and displayed on the left area and the right area of the search-keyword list display screen G4, respectively. The user can instantly find the keyword including the search character string and the explanation content on the
10 search-keyword list display screen G4.

Still further, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, a verb, an adjective or a noun contained in the search character string consisting of plural words may be
15 chosen as a keyword to be searched for. If the explanation contents of the searched keyword does not include the search character string consisting of plural words, other word in the search character string consisting of plural words is chosen as the keyword and the explanation contents that include the
20 search character string consisting of plural word and their keyword may be searched and displayed without failure.

In the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, a keyword that coincides with the search character string
25 consisting of plural words is searched through a Phrase dictionary, and the searched keyword and its explanation contents with the "phrase" mark added are displayed on the

search-keyword list display screen G4. A keyword including plural words may be searched through English-Japanese dictionary and Phrase dictionary, wherein a simple and more detailed keyword and its explanation contents may be found and
5 displayed.

Further, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration set forth above, if the explanation contents corresponding to the searched keyword include data of "~", the data of "~" is
10 replaced with the keyword. Since it is judged whether or not the search character string consisting of plural words is included in the explanation contents, or whether or not the search character string consisting of plural words is included in the explanation contents with data of "~" replaced with the
15 keyword, the keyword having explanation of the search character string consisting of plural words may be searched even from data base of the English-Japanese dictionary without failure.

Still further, in the information displaying apparatus (communication electronic-dictionary) 10 of the configuration
20 set forth above, if the explanation contents corresponding to the searched keyword include data of "SV", the data of "SV" is replaced with "S + keyword". Since it is judged whether or not the search character string consisting of plural words is included in the explanation contents, or whether or not the
25 search character string consisting of plural words is included in the explanation contents with data of "SV" replaced with "S + keyword", the keyword having explanation of the search

character string consisting of plural words may be searched even from data base of the English-Japanese dictionary without failure.

In the information displaying apparatus (communication
5 electronic-dictionary) 10 of the configuration set forth above,
if the content data of the explanation items 136a, 163b, etc.
include the search character string including a phrase
consisting of plural words, the search character string portion
in the content data is highlighted at 138 or displayed in other
10 color, in bold, or in other font on the explanation-content
display screen G5. Therefore, the user can find the search
character string portion on the explanation-content display
screen G5.

In the information displaying apparatus (communication
15 electronic-dictionary) 10 of the configuration set forth above,
the keywords having content data including a search character
string consisting of plural words are displayed on the left area
of the search-keyword list display screen G4 on the display
device 18 and the heading data of the explanation contents are
20 displayed on the right area of the search-keyword list display
screen G4. If the explanation contents include the search
character string as a sample sentence, the "sample" mark is
added to the explanation contents. If the explanation contents
include or explain the search character string as a phrase, the
25 "phrase" mark is added to the explanation contents. Therefore,
the user can easily find his/her desired explanation contents
on the search-keyword list display screen G4.

The information displaying procedure (#1), (#2) in the dictionary search operation performed respectively in accordance with the flow charts shown in Fig. 10 and Fig. 11 in the information displaying apparatus (communication electronic-dictionary) 10 may be performed by a computer under program instructions and such program may be stored and distributed in an external storage 13 such as a memory card (ROM card, RAM card, etc.), a magnetic disc (floppy disc, hard disc, etc.), an optical memory disc (CD-ROM, DVD, etc.), a semiconductor memory. Similarly, the keyword selecting procedure in the information display procedure performed in accordance with the flow chart shown in Fig. 12 and the plural word searching procedure in the information displaying procedure performed in accordance with the flow chart shown in Fig. 13 may be performed by the computer under program instructions and such program may be stored and distributed in an external storage 13 such as a memory card (ROM card, RAM card, etc.), a magnetic disc (floppy disc, hard disc, etc.), an optical memory disc (CD-ROM, DVD, etc.), a semiconductor memory. Meanwhile, a computer terminal with a function of communicating with the Internet network reads the program stored in the external storage 13 into its own recording device 14, and performs the similar information display procedure in the dictionary search operation under the instructions of the program.

Program codes of such program may be transferred over the Internet network, and the computer terminal connected to the

Internet network can read in the program codes and therefore the information display procedure in the dictionary search may be performed by such computer terminal.

Further modification and variation can be made to the disclosed
5 embodiments without departing from the subject and spirit of the invention as defined in the following claims. Such modification and variations, as included within the scope of these claims, are meant to be considered part of the invention as described.

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